

**WHAT IS CLAIMED IS:**

1                   1.       A composition for delivery of a 5-HT agonist across the oral mucosa,  
2       said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a ternary buffer system comprising a carbonate salt, a bicarbonate salt, and a  
6                   metal oxide,

7       wherein said ternary buffer system raises the pH of saliva to a pH greater than about 9.9  
8       irrespective of the starting pH of saliva.

1                   2.       A composition of claim 1, wherein said ternary buffer system raises the  
2       pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of saliva.

1                   3.       A composition of claim 1, wherein said 5-HT agonist is selected from  
2       the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3       zolmitriptan, frovatriptan, and combinations thereof.

1                   4.       A composition of claim 1, wherein said carbonate salt is selected from  
2       the group consisting of sodium carbonate and potassium carbonate.

1                   5.       A composition of claim 1, wherein said bicarbonate salt is selected  
2       from the group consisting of sodium bicarbonate and potassium bicarbonate.

1                   6.       A composition of claim 1, wherein said metal oxide is selected from  
2       the group consisting of magnesium oxide and aluminum oxide.

1                   7.       A composition of claim 6, wherein said magnesium oxide is  
2       amorphous magnesium oxide.

1                   8.       A composition of claim 1, wherein said ternary buffer system  
2       comprises sodium carbonate, sodium bicarbonate, and amorphous magnesium oxide.

1                   9.       A composition of claim 1, wherein said carrier is selected from the  
2       group consisting of a binder, a gum base, and combinations thereof.

1                   10.      A composition of claim 9, wherein said gum base comprises at least  
2       one hydrophobic polymer and at least one hydrophilic polymer.

1                   11.    A composition of claim 9, wherein said binder is selected from the  
2 group consisting of a sugar, a sugar alcohol, and combinations thereof.

1                   12.    A composition of claim 11, wherein said sugar alcohol is selected from  
2 the group consisting of mannitol, sorbitol, xylitol, and combinations thereof.

1                   13.    A composition of claim 1, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   14.    A composition of claim 13, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   15.    A composition of claim 1, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   16.    A composition of claim 1, further comprising a 5-HT antagonist.

1                   17.    A composition of claim 1, further comprising a non-steroidal anti-  
2 inflammatory drug (NSAID).

1                   18.    A composition of claim 1, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   19.    A composition of claim 1, wherein said 5-HT agonist is sumatriptan  
2 and said ternary buffer system comprises sodium carbonate, sodium bicarbonate, and  
3 amorphous magnesium oxide.

1                   20.    A composition of claim 19, wherein said composition is a lozenge or a  
2 dissolving tablet.

1                   21.    A composition of claim 20, wherein said composition is administered  
2 sublingually.

1                   22.    A composition of claim 19, wherein said sodium bicarbonate is  
2 desiccant-coated sodium bicarbonate.

1                   **23.**     A composition of claim 19, wherein the weight percent of amorphous  
2 magnesium oxide is greater than the combined weight percent of sodium carbonate and  
3 sodium bicarbonate.

1                   **24.**     A composition of claim 23, wherein said composition comprises from  
2 about 2.5 to about 4.5 weight percent sumatriptan; from about 4.0 to about 7.0 weight percent  
3 sodium carbonate; from about 8.0 to about 12.0 weight percent dessicant-coated sodium  
4 bicarbonate; and from about 20 to about 30 weight percent amorphous magnesium oxide.

1                   **25.**     A composition of claim 24, wherein composition comprises about 3.5  
2 weight percent sumatriptan; about 5.5 weight percent sodium carbonate; about 9.0 weight  
3 percent dessicant-coated sodium bicarbonate; and about 25 weight percent amorphous  
4 magnesium oxide.

1                   **26.**     A composition for delivery of a 5-HT agonist across the oral mucosa,  
2 said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a ternary buffer system comprising a carbonate salt, a bicarbonate salt, and a  
6 citrate, phosphate, or borate salt,

7 wherein said ternary buffer system raises the pH of saliva to a pH greater than about 9.9  
8 irrespective of the starting pH of saliva.

1                   **27.**     A composition of claim 26, wherein said ternary buffer system raises  
2 the pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of  
3 saliva.

1                   **28.**     A composition of claim 26, wherein said 5-HT agonist is selected from  
2 the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3 zolmitriptan, frovatriptan, and combinations thereof.

1                   **29.**     A composition of claim 26, wherein said carbonate salt is selected  
2 from the group consisting of sodium carbonate and potassium carbonate.

1                   **30.**     A composition of claim 26, wherein said bicarbonate salt is selected  
2 from the group consisting of sodium bicarbonate and potassium bicarbonate.

1                   **31.**     A composition of claim 26, wherein said citrate salt is selected from  
2 the group consisting of sodium citrate, potassium citrate, calcium citrate, magnesium citrate,  
3 and ammonium citrate.

1                   **32.**     A composition of claim 26, wherein said phosphate salt is selected  
2 from the group consisting of monobasic sodium phosphate, dibasic sodium phosphate,  
3 monobasic potassium phosphate, dibasic potassium phosphate, monobasic calcium  
4 phosphate, dibasic calcium phosphate, monobasic magnesium phosphate, dibasic magnesium  
5 phosphate, monobasic ammonium phosphate, and dibasic ammonium phosphate.

1                   **33.**     A composition of claim 26, wherein said borate salt is selected from  
2 the group consisting of sodium borate, potassium borate, calcium borate, magnesium borate,  
3 and ammonium borate.

1                   **34.**     A composition of claim 26, further comprising a metal oxide.

1                   **35.**     A composition of claim 26, wherein said carrier is selected from the  
2 group consisting of a binder, a gum base, and combinations thereof.

1                   **36.**     A composition of claim 26, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   **37.**     A composition of claim 36, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   **38.**     A composition of claim 26, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **39.**     A composition of claim 26, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **40.**     A composition of claim 26, wherein said 5-HT agonist is sumatriptan  
2 and said ternary buffer system comprises sodium carbonate, sodium bicarbonate, and a  
3 citrate, phosphate, or borate salt.

1                   41.     A composition of claim 40, wherein said composition is a lozenge or a  
2     dissolving tablet.

1                   42.     A composition of claim 41, wherein said composition is administered  
2     sublingually.

1                   43.     A composition for delivery of a 5-HT agonist across the oral mucosa,  
2     said composition comprising:

3             (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4             (b) a carrier; and

5             (c) a buffer system comprising a carbonate salt or a bicarbonate salt and two or more  
6             buffering agents selected from the group consisting of a metal oxide, a citrate salt,  
7             a phosphate salt, and a borate salt,

8     wherein said buffer system raises the pH of saliva to a pH greater than about 9.9 irrespective  
9     of the starting pH of saliva.

1                   44.     A composition of claim 43, wherein said ternary buffer system raises  
2     the pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of  
3     saliva.

1                   45.     A composition of claim 43, wherein said 5-HT agonist is selected from  
2     the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3     zolmitriptan, frovatriptan, and combinations thereof.

1                   46.     A composition of claim 43, wherein said carbonate salt is selected  
2     from the group consisting of sodium carbonate and potassium carbonate.

1                   47.     A composition of claim 43, wherein said bicarbonate salt is selected  
2     from the group consisting of sodium bicarbonate and potassium bicarbonate.

1                   48.     A composition of claim 43, wherein said carrier is selected from the  
2     group consisting of a binder, a gum base, and combinations thereof.

1                   49.     A composition of claim 43, wherein said composition is a dosage form  
2     selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3     dissolving tablet.

1                   **50.**     A composition of claim **49**, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   **51.**     A composition of claim **43**, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **52.**     A composition of claim **43**, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **53.**     A composition of claim **43**, wherein said composition is administered  
2 sublingually.

1                   **54.**     A composition for delivery of a 5-HT agonist across the oral mucosa,  
2 said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a binary buffer system comprising a carbonate salt or a bicarbonate salt and a  
6 metal oxide,

7 wherein said binary buffer system raises the pH of saliva to a pH greater than about 9.9  
8 irrespective of the starting pH of saliva.

1                   **55.**     A composition of claim **54**, wherein said binary buffer system raises  
2 the pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of  
3 saliva.

1                   **56.**     A composition of claim **54**, wherein said 5-HT agonist is selected from  
2 the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3 zolmitriptan, frovatriptan, and combinations thereof.

1                   **57.**     A composition of claim **54**, wherein said carbonate salt is selected  
2 from the group consisting of sodium carbonate and potassium carbonate.

1                   **58.**     A composition of claim **54**, wherein said bicarbonate salt is selected  
2 from the group consisting of sodium bicarbonate and potassium bicarbonate.

1                   **59.**     A composition of claim 54, wherein said metal oxide is selected from  
2 the group consisting of magnesium oxide and aluminum oxide.

1                   **60.**     A composition of claim 59, wherein said magnesium oxide is  
2 amorphous magnesium oxide.

1                   **61.**     A composition of claim 54, wherein said binary buffer system  
2 comprises sodium carbonate and amorphous magnesium oxide.

1                   **62.**     A composition of claim 54, wherein said binary buffer system  
2 comprises sodium bicarbonate and amorphous magnesium oxide.

1                   **63.**     A composition of claim 54, wherein said carrier is selected from the  
2 group consisting of a binder, a gum base, and combinations thereof.

1                   **64.**     A composition of claim 54, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   **65.**     A composition of claim 56, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   **66.**     A composition of claim 54, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **67.**     A composition of claim 54, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **68.**     A composition of claim 54, wherein said 5-HT agonist is sumatriptan  
2 and said binary buffer system comprises sodium carbonate or sodium bicarbonate and  
3 amorphous magnesium oxide.

1                   **69.**     A composition of claim 68, wherein said composition is a lozenge or a  
2 dissolving tablet.

1                   **70.**     A composition of claim 69, wherein said composition is administered  
2 sublingually.

1                   71.     A composition of claim 68, wherein the weight percent of amorphous  
2 magnesium oxide is greater than the weight percent of sodium carbonate or sodium  
3 bicarbonate.

1                   72.     A composition for delivery of a 5-HT agonist across the oral mucosa,  
2 said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a binary buffer system comprising a carbonate salt or a bicarbonate salt and a  
6 citrate, phosphate, or borate salt,

7 wherein said binary buffer system raises the pH of saliva to a pH greater than about 9.9  
8 irrespective of the starting pH of saliva.

1                   73.     A composition of claim 72, wherein said binary buffer system raises  
2 the pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of  
3 saliva.

1                   74.     A composition of claim 72, wherein said 5-HT agonist is selected from  
2 the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3 zolmitriptan, frovatriptan, and combinations thereof.

1                   75.     A composition of claim 72, wherein said carbonate salt is selected  
2 from the group consisting of sodium carbonate and potassium carbonate.

1                   76.     A composition of claim 72, wherein said bicarbonate salt is selected  
2 from the group consisting of sodium bicarbonate and potassium bicarbonate.

1                   77.     A composition of claim 72, wherein said carrier is selected from the  
2 group consisting of a binder, a gum base, and combinations thereof.

1                   78.     A composition of claim 72, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   79.     A composition of claim 78, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.



1                   **80.**     A composition of claim 72, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **81.**     A composition of claim 72, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **82.**     A composition of claim 72, wherein said 5-HT agonist is sumatriptan  
2 and said binary buffer system comprises sodium carbonate or sodium bicarbonate and and a  
3 citrate, phosphate, or borate salt.

1                   **83.**     A composition of claim 82, wherein said composition is a lozenge or a  
2 dissolving tablet.

1                   **84.**     A composition of claim 83, wherein said composition is administered  
2 sublingually.

1                   **85.**     A composition for delivery of a 5-HT agonist across the oral mucosa,  
2 said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a binary buffer system comprising a metal oxide and a citrate, phosphate, or  
6 borate salt,

7 wherein said binary buffer system raises the pH of saliva to a pH greater than about 9.9  
8 irrespective of the starting pH of saliva.

1                   **86.**     A composition of claim 85, wherein said binary buffer system raises  
2 the pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of  
3 saliva.

1                   **87.**     A composition of claim 85, wherein said 5-HT agonist is selected from  
2 the group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan,  
3 zolmitriptan, frovatriptan, and combinations thereof.

1                   **88.**     A composition of claim 85, wherein said metal oxide is selected from  
2 the group consisting of magnesium oxide and aluminum oxide.

1                   **89.**    A composition of claim 88, wherein said magnesium oxide is  
2 amorphous magnesium oxide.

1                   **90.**    A composition of claim 85, wherein said carrier is selected from the  
2 group consisting of a binder, a gum base, and combinations thereof.

1                   **91.**    A composition of claim 85, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   **92.**    A composition of claim 91, wherein said dissolving tablet is selected  
2 from the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   **93.**    A composition of claim 85, wherein said oral mucosa is selected from  
2 the group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **94.**    A composition of claim 85, wherein the average particle size of said 5-  
2 HT agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **95.**    A composition of claim 85, wherein said 5-HT agonist is sumatriptan  
2 and said binary buffer system comprises amorphous magnesium oxide and a citrate,  
3 phosphate, or borate salt.

1                   **96.**    A composition of claim 95, wherein said composition is a lozenge or a  
2 dissolving tablet.

1                   **97.**    A composition of claim 96, wherein said composition is administered  
2 sublingually.

1                   **98.**    A composition for delivery of a 5-HT agonist across the oral mucosa,  
2 said composition comprising:

3                   (a) a 5-HT agonist or a pharmaceutically acceptable salt thereof;

4                   (b) a carrier; and

5                   (c) a binary buffer system comprising a carbonate salt and a bicarbonate salt,

6                wherein said binary buffer system raises the pH of saliva to a pH greater than  
7        about 9.9 irrespective of the starting pH of saliva.

1                **99.**     A composition of claim **98**, wherein said 5-HT agonist is sumatriptan  
2        and said binary buffer system is combined with sumatriptan to form a solution just prior to  
3        delivery of sumatriptan to the oral mucosa.

1                **100.**    A composition of claim **98**, wherein said 5-HT agonist is sumatriptan  
2        and said binary buffer system comprises sodium bicarbonate and sodium carbonate wherein  
3        the ratio of sodium bicarbonate to sodium carbonate is from about 2:1 to about 5:1 by  
4        weight.

1                **101.**    A composition of claim **100**, said composition delivering a peak  
2        plasma concentration within about 1-15 minutes following administration.

1                **102.**    A method for treating a migraine in a subject in need thereof, said  
2        method comprising:

3                administering to said subject a composition comprising a therapeutically  
4        effective amount of sumatriptan or a pharmaceutically acceptable salt thereof, a carrier, and a  
5        binary buffer system comprising a carbonate salt and a bicarbonate salt, wherein said binary  
6        buffer system raises the pH of saliva to a pH greater than about 9.9 irrespective of the starting  
7        pH of saliva.

1                **103.**    A method in accordance with claim **102**, wherein said composition is a  
2        solution composition.

1                **104.**    A method in accordance with claim **103**, wherein said binary buffer  
2        system comprises sodium bicarbonate and sodium carbonate wherein the ratio of sodium  
3        bicarbonate to sodium carbonate is from about 2:1 to about 5:1 by weight, and said  
4        composition provides a peak plasma concentration within about 1-15 minutes following  
5        administration to said subject.

1                **105.**    A method for treating a migraine in a subject in need thereof, said  
2        method comprising:

3                administering to said subject a composition comprising a therapeutically  
4        effective amount of a 5-HT agonist or a pharmaceutically acceptable salt thereof, a carrier,

5 and a ternary buffer system comprising a carbonate salt, a bicarbonate salt, and a metal oxide,  
6 wherein said ternary buffer system raises the pH of saliva to a pH greater than about 9.9  
7 irrespective of the starting pH of saliva.

1           **106.** A method of claim **105**, wherein said ternary buffer system raises the  
2 pH of saliva to a pH of from about 9.9 to about 11 irrespective of the starting pH of saliva.

1           **107.** A method of claim **105**, wherein said composition delivers said 5-HT  
2 agonist across the oral mucosa.

1           **108.** A method of claim **107**, wherein said oral mucosa is selected from the  
2 group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1           **109.** A method of claim **105**, wherein said migraine is selected from the  
2 group consisting of a migraine without aura and a migraine with aura.

1           **110.** A method of claim **105**, wherein said 5-HT agonist is selected from the  
2 group consisting of sumatriptan, naratriptan, rizatriptan, eletriptan, almotriptan, zolmitriptan,  
3 frovatriptan, and combinations thereof.

1           **111.** A method of claim **105**, wherein said carbonate salt is selected from  
2 the group consisting of sodium carbonate and potassium carbonate.

1           **112.** A method of claim **105**, wherein said bicarbonate salt is selected from  
2 the group consisting of sodium bicarbonate and potassium bicarbonate.

1           **113.** A method of claim **105**, wherein said metal oxide is selected from the  
2 group consisting of magnesium oxide and aluminum oxide.

1           **114.** A method of claim **113**, wherein said magnesium oxide is amorphous  
2 magnesium oxide.

1           **115.** A method of claim **105**, wherein said ternary buffer system comprises  
2 sodium carbonate, sodium bicarbonate, and amorphous magnesium oxide.

1           **116.** A method of claim **105**, wherein said carrier is selected from the group  
2 consisting of a binder, a gum base, and combinations thereof.

1                   **117.** A method of claim **105**, wherein said composition is a dosage form  
2 selected from the group consisting of a lozenge, a chewing gum, a chewable tablet, and a  
3 dissolving tablet.

1                   **118.** A method of claim **117**, wherein said dissolving tablet is selected from  
2 the group consisting of a slow-dissolving tablet and a quick-dissolving tablet.

1                   **119.** A method of claim **105**, wherein said oral mucosa is selected from the  
2 group consisting of the sublingual mucosa, the buccal mucosa, and a combination thereof.

1                   **120.** A method of claim **105**, further comprising a 5-HT antagonist.

1                   **121.** A method of claim **105**, further comprising a non-steroidal anti-  
2 inflammatory drug (NSAID).

1                   **122.** A method of claim **105**, wherein the average particle size of said 5-HT  
2 agonist or a pharmaceutically acceptable salt thereof is less than or equal to the average  
3 particle size of said carrier.

1                   **123.** A method of claim **105**, wherein said 5-HT agonist is sumatriptan and  
2 said ternary buffer system comprises sodium carbonate, sodium bicarbonate, and amorphous  
3 magnesium oxide.

1                   **124.** A method of claim **123**, wherein said composition is a lozenge or a  
2 dissolving tablet.

1                   **125.** A method of claim **124**, wherein said composition is administered  
2 sublingually.

1                   **126.** A method of claim **123**, wherein the weight percent of amorphous  
2 magnesium oxide is greater than the combined weight percent of sodium carbonate and  
3 sodium bicarbonate.